

STRATEGIC DECISION MAKING PARADIGMS: A PRIMER FOR SENIOR LEADERS

Colonel (Retired) Charles D. Allen
Professor of Cultural Science

Dr. Breena E. Coates, Ph.D.
Professor of Management

U.S. Army War College

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STRATEGIC DECISION MAKING PARADIGMS: A PRIMER FOR SENIOR LEADERS

The goal for the year at the United States Army War College (USAWC) is to prepare our students to be strategic leaders or to serve as effective advisers to the senior leadership of our military and this Nation. Nobel Laureate, Elihu Root, the Secretary of War in 1901, challenged our institution to study the three great problems of “national defense, military science and responsible command.”¹ This means that our graduates are part of the system that determines and reaffirms the values and the security interests of our Nation. This system formulates policies and spawns the series of strategic documents beginning with the National Security Strategy of the United States, and supported by the Quadrennial Defense Review, the National Defense Strategy and the National Military Strategy generated within the Department of Defense (DOD). As members of the profession of arms sworn to protect and defend against all enemies, our graduates must be experts in the development of plans and the employment of military forces in the execution of our national policies. The USAWC’s primary mission is to help students gain an appreciation of the challenges of strategic decision making by incorporating into its curriculum lessons relating to the theory and practice of strategy formulation, implementation and evaluation. The curriculum does so by providing an overlay of historical case studies to make real the complexity involved in strategic decision making.

STRATEGIC DECISION MAKING

Strategic Change: There are several strategic decisions that involved change in the United States Army in the second half of the 20th century. After the conclusion of World

War II, the U.S. Army roles and missions were explicitly stated in the National Security Act of 1947. These established its jurisdiction vis-à-vis the other services.² In the 1950's, the Army sought to redefine itself to accommodate the defense priorities of President Dwight D. Eisenhower. At issue during the Eisenhower administration was the contentious restructuring of the force for the nuclear era.³ Later, the Vietnam War necessitated a change in Army doctrine and force structure to deal with the environment of unconventional war. In the 1970's and 80's, the Army again redefined itself to face the Soviet threat in Western Europe as it learned to operate with the all-recruited and professionalized "all-volunteer" force. Each of these periods required strategic decisions reached by senior leadership and implemented using a framework that is today referred to as Doctrine, Organization, Training, Materiel, Leader Development, Personnel, and Facilities (DOTMLPF). Currently our Army, as part of the national defense establishment, is faced with strategic decisions on how to develop and position our forces for success in the joint operating environment (JOE) and for the future.

In each case, Army leadership was engaged and defined the purpose of the organization, establishing the vision, and developing supporting strategies to achieve it—deciding what to do, when, and how. Accordingly, strategic decisions are made by the members of the organization who have the ultimate responsibility to ensure fulfillment of its purpose and who accept the consequences when it does not. For the U.S. military, strategic decisions are made by the civilian Secretary of Defense, the Chairman, Joint Chiefs of Staff, Service Secretaries and Service Chiefs, and Combatant Commanders, all of whom bear responsibility to the Chief Executive, Congress, and ultimately to the American people. Decisions about the Army involve other

organizations and agencies that clearly have a stake in what the Army does, and how it goes about doing it. The nature of the contemporary operating environment (COE) necessitates consideration of capabilities possessed by joint, interagency, intergovernmental, multinational (JIIM) and non-governmental actors. Thus, strategic decision makers may be significantly influenced by stakeholders outside of the organization.

The Ontology of Strategic Decision Making.

Strategic decisions are non-routine and involve both the art of leadership and the science of management. Routine decisions of how to efficiently manage resources according to established procedures and clearly understood objectives is the technical work of management. Routine decisions are normally the purview of supervisors and middle-level managers that have the requisite authority and responsibility to take action. However, non-routine decisions require what Harvard Professor Ron Heifetz refers to as “adaptive work” where senior leadership must consider the broader implications of the situation, take an active role in defining the problem, creatively explore potential solutions, and apply judgments as to what *should* be done.⁴ The USAWC defines Strategic Leadership as the process of influence for “achievement of a desirable and clearly understood vision by influencing the organizational culture, allocating resources, directing through policy and directive, and building consensus,”⁵ implicitly requires the capacity for strategic decision making.

The Complexity of Strategic Decision Making

Strategic decisions entail “ill-structured,”⁶ “messy” or “wicked problems” that do not have quick, easy solutions.⁷ H.L. Mencken’s quip is amusing and accurate, “there is always a well-known solution to every human problem—neat, plausible, and wrong.”⁸ This concept, known as the Error of the Third Kind, describes how complex problems are often addressed with a correct solution to the wrong problem.⁹ At the strategic level, the scope of decision making is different than at other levels within a military organization—tactical and operational—which have established and accepted procedures that are normative and prescriptive. Tactical convoy movements of an infantry platoon can be reduced to several definable parameters—number of vehicles, rate of march, interval between vehicles, number of refuel and rest stops, etc., so that the platoon leader can arrive at the “right” solution to get the unit to a desired location. At the operational level, movements from a staging area for multiple brigade combat teams along parallel routes may be more complicated, but use the same parameters to determine a “best” way to deploy combat forces into an area of operation in accordance with a well-prescribed movement table. However, the strategic level decision on the number of brigade combat teams that the Army will field as part of its Transformation to the Modular Force involves innumerable interdependent activities within the DOTMLPF framework. Such a decision is inherently more complex and “ill-structured” in pursuit of the objective to provide relevant landpower forces to combatant commanders for future battlefields.

At the strategic level, the national defense establishment and its members must interact across diverse environmental domains and are required to demonstrate

effectiveness in the eyes of multiple constituents. Strategic decision making occurs at a key nexus of that interaction, culminating from decision criteria associated with dynamic, nonlinear, highly interconnected, and interdependent relationships. The power to make strategic decisions is usually dispersed over a number of constituencies. The purpose of this paper is to show commonly used decision paradigms, highlighting their particular strengths and weaknesses as appropriate. Making sense of strategic decisions requires adding a set of mental models distinct from the traditional military decisionmaking models. The decision theories presented provide leaders with the understanding of the major forms of decision making used in complex environments. These models are more than abstract conceptualizations; they provide frameworks by which to analyze past strategic practices and develop new ones. The models are generally categorized as either descriptive or prescriptive. As the term implies, the prescriptive model suggests methods and processes that should be used in order to make better decisions. This type of model is seen as a matter of choice by decision makers (e.g., the Military Decision Making Process). In contrast, descriptive models attempt to detail the process of how decisions are actually made. In most cases, attempts to apply a prescriptive model will lead to dynamics best captured by a descriptive model.

THE BASIC DECISION MAKING PARADIGMS.

There are many models of decision making useful for strategists in conceptualizing decisions. Some of the most well known that are of value for USAWC students are:

- 1) Rational Model, 2) Bounded-Rationality Model, 3) Incremental Model, 4) Mixed-Scanning Model, 5) Polis Model, 6) Garbage Can Model, 7) Bargaining Model,

8) Participative Model. Other decision making models that have foundations in microeconomic theory, such as the public-choice model, the prospect model, etc., relate more closely to the civilian, non-military sector and thus are not addressed here.

Rational Decision Making. This approach, also known as “the rational-comprehensive” model, borrows from economic theory and has the goal of maximizing efficiency by picking the best alternative based on specific criteria. Congruent with the MDMP, it is often described as a six-step process:

1. Define goals
2. Identify alternatives
3. Calculate the consequences
4. Decide the most favorable using a calculated ratio of benefits to costs
5. Monitor implementation
6. Begin again

The rational approach is very attractive and easy to embrace with its simplicity. The formulation intuitively seems to make sense. It provides a structured way to address a problem and arrive at a solution. The approach may appear to impose certainty and clarity. However, it is best suited for simple, well-structured problems. The rational decision making process depends on clear statements of goals accepted by those seeking to address problematic conditions. The rational decision making process works well on technical issues when goals are precisely defined and there is general agreement on measures for analysis and selection criteria. NASA uses this rational approach because engineering parameters and procedures tend to be less ambiguous. The use of this approach is much more difficult and problematic for defense organizations whose goals are constantly a matter of debate in a political system designed to balance federal power between three branches of government.

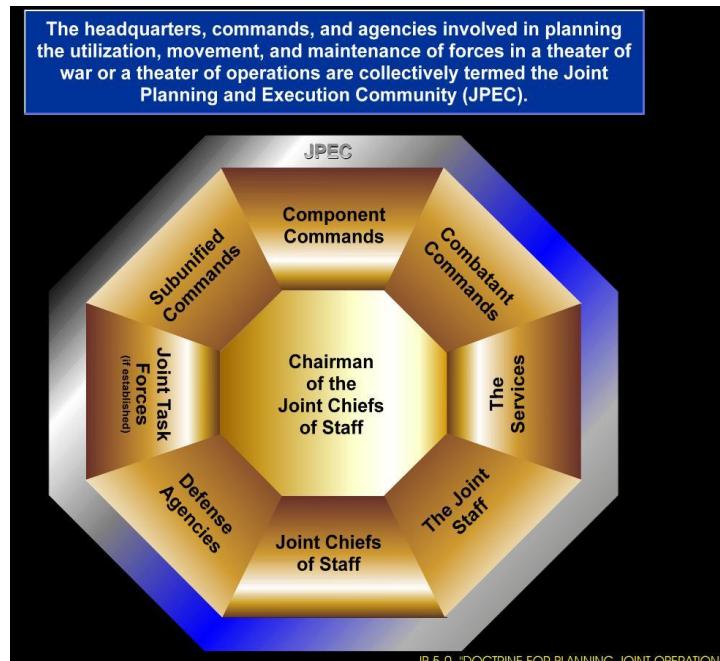


Figure 1. The Joint Planning and Execution Community¹⁰

Although the rational approach of the Military Decision Making Process (MDMP) is embraced by our military culture, many factors prevent its strict adherence as a prescriptive process. We see the challenge presented by the rational approach when our military leaders seek clear expressions of desired end-states as a precursor to developing military strategy and operational plans (e.g., Weinberg-Powell doctrine as implemented in Operations Desert Shield and Desert Storm). Using the context of the Joint Planning and Execution Community (JPPEC) shown in Figure 1, it is arguably difficult to have each sub-community agree on the common goals to be achieved. The nature of the problems and the complexity of the environment would generate an unmanageable number of possible alternatives to consider. The uncertainty and ambiguity of the environment would also undermine any confidence in determining consequences if a particular alternative were selected. Those consequences, either in

the attainment of stated goals or commensurate benefits and costs, assume causality between selected courses of actions and subsequent results. While military leaders prefer clear expressions of end states and objectives, ambiguity is valuable in a political environment. The desire for clearly delineated goals and objectives are rarely to be found and even when they are stated publicly, they are often subject to change. Hence, the rational decision making approach is not sufficient to explain the real-world decisions made at the operational and strategic level.

The Behavioral Model (Bounded Rationality): The most important critique of the rational approach comes from the work of Nobel Laureate, Herbert Simon, who presented the concept of “bounded rationality.”¹¹ This theory holds that:

1. Humans are intellectually ill-equipped to make cognitively rational decisions because they can only process a few bits of data at a time.
2. Comprehensive analysis is impossible due to limitations on the availability of information, time, and expertise.
3. Individuals cannot imagine every possible solution to a problem, and therefore not all possible alternatives are considered or analyzed.

The practical application of the rational MDMP has decision makers simplifying the problem set and restricting themselves to a few major alternatives. This happens in the face of time constraints and the limitations of people. In practice, decision makers identify a limited number of decision making criteria and subsequently examine a limited range of alternatives that have worked before or are easy to develop. Alternative selection tends to stop at the first alternative that sufficiently addresses the problem at hand. Given the lack of perfect information to make the decision and the impossibility of optimization in the problem-setting, Simon argued that decision makers “satisfice.” That

is to say that people do not optimize decisions, but actually seek to find a solution that is minimally sufficient and satisfactory—one that is “good enough” to meet minimum established criteria. The conclusion of Operation Desert Shield in 1991 short of an invasion of Iraq and the overthrow of Saddam Hussein’s regime could be viewed as a satisfied decision that was good enough at the time.

This model often has an implicit choice variant where, although multiple alternatives are presented, there is a clear favorite that will likely be selected so decision criteria are skewed to support the choice. Those military planners and operators who have been involved with MDMP can recount the development of the obligatory three courses of action and the “objective weighting” that resulted in selection of the staff favorite course of action (i.e., the one that the commander would approve).

Incremental Model: Charles Lindblom also rejected the rational-comprehensive model and presented an alternative “incremental” approach to decision making. In his now famous paper, “The Science of Muddling Through,”¹² Lindblom saw that most policy decisions are made in small analytical increments in response to events and circumstances where the decision-maker’s analysis is focused on familiar, better-known experiences. This significantly reduces the number of decision factors and alternatives available. “Disjointed” incrementalism, argued Lindblom, is really how problems are solved over time, in piecemeal, rather than in comprehensive, fashion. Relatively small or incremental policy changes tend to be the norm because of the need for consensus among the interested parties and negotiation efforts are directed to what can be achieved. Unfortunately, the attainment of short-term solutions may be at the expense

of more important and far-reaching goals. Incrementalism is not inherently undesirable since small changes from the resulting decisions are more subject to correction if they produce unfavorable outcomes. The theory of incrementalism explains how the process of decision making is slowed down, and organizations avoid making big mistakes that could be costly militarily, financially and politically. However, focus on smaller problems and failure to confront the larger issues may result in “kicking the can down the road” to deal with later when the situation may be more complex and dangerous. Furthermore, the incremental model may slowly move the organization away from the original espoused goals. If the organization is faced with an environment that has changed significantly, the incremental approach is unlikely to result in the necessary amount of change to guarantee organizational survival.¹³

The incremental model has the following characteristics:

1. Only a few options and means are considered
2. Decisions are the product of negotiated settlements
3. Changes are made gradually over time
4. Decisions tend to be made reactively
5. Political considerations are important in determining outcomes

The incremental approach to decision making is reflective of the Program, Planning, Budgeting, and Executing (PPBE) process used in the military. The greatest predetermining factor for any year’s budget is the prior year’s budget. Anything more than incremental change is unlikely when it comes to the budgetary process. An item might be submitted and approved in the Program Objective Memorandum (POM), and might be incrementally added to by using the Supplemental Budget to gain more

resources for it. Alternatively, a program might be incrementally developed in the POM over several years. Several of our DA weapons systems programs (e.g., Bradley Fighting Vehicle System, the Remotely Piloted Vehicle, and the Future Combat System could be viewed using the incremental model. In the case of the Bradley Fighting Vehicle, the original espoused goals were incrementally contradicted over time.¹⁴

Lindblom conceded shortcomings of the incremental approach including: fragmentation of decisions, arbitrary exclusions, and decision-makers may overlook excellent policies not suggested by the chain of successive policy steps. Yehezkel Dror offered other critiques of incrementalism: It may not suffice to meet real growing demands; it may miss the mark entirely, it lacks responsiveness to large-scale needs, it makes acceptable the forces that tend toward inertia, it maintains the status quo, and, it lacks innovativeness.¹⁵ The result may be a failure to confront major issues by “kicking the can down the road” to deal with later. The danger is that the situation may become more complex and tenuous.

Mixed Scanning Model: This is a hybrid, or compromise, paradigm derived from rational and incremental decision making theories. It is drawn from the work of sociologist Amitai Etzioni¹⁶ who suggested its use in seeking policy solutions to short-term, but urgent, needs of the immediate present. It is, in effect, a concept that can be described as “splitting the difference” between the models. Etzioni likens the concept to a photographer working with two cameras. A broad-angled camera quickly pans through the entire environment—which is the rational approach. Another camera “would zero in on those areas revealed by the first camera to require more detailed

examination.¹⁷ Janis and Mann¹⁸ call this the *quasi-satisficing* approach. For example, the U.S. National Security Advisor to the President in suggesting a policy decision on terrorist camps in Pakistan, might superficially scan all recent developments, which is the comprehensive approach. He might then focus on the issues that have come up since the last scan, which is the incremental approach.

At the level of the Chairman of the Joint Chiefs of Staff, a strategic problem, such as giving advice to the Secretaries of Defense and State, on whether the United States should assist Israel in its ongoing conflict with Hamas. The Chairman, much like a chess player, would plausibly review the chessboard¹⁹ of options: military support; political and diplomatic support; watch-and-wait, or some other strategy. He might then choose a particular approach. Having done so, he and his team would go back to examining, in detail, the options within the chosen subset. When President Franklin Delano Roosevelt and his advisors scanned the available options for the United States prior to involvement in World War II, he was utilizing the rational approach. When it became clear that the preferred option was involvement in the war, FDR and advisors then scanned pertinent decisions required for United States involvement. In turn, this scan generated the strategy for entry into the war.

Etzioni criticized both approaches as being insufficient. On the one hand, calling the rational approach unrealistic and arguing that a full examination of all pertinent choices is impractical and, on the other hand, he observed that incrementalism did not distinguish between core and peripheral issues.

Polis Model: Another scholar who has been critical about the rational and the incremental models is Deborah Stone, who offered another perspective of public policy making—the Polis model of a political community.²⁰ Stone presented opposing viewpoints of the *market* (a rational model for political decision making) and the *polis* (how political decisions really happen). She argued the polis perspective is more descriptive of the way decisions are really made by comparing the theoretical political environments of the market and the polis and considering the goals of the respective communities. How problems are defined in the market versus the polis is a function of symbolism, causes, and interests that influence how problems are addressed. Decisions are made and solutions (policy-strategies) are formed with inducements, rules, rights, and powers as the driving forces. In sum, the polis model assumes inconsistencies in life where the political community is able to deal with less than comprehensive information and less than reliable information. Stone's model has the following characteristics:²¹

1. State goals ambiguously and keep some secret.
2. Be prepared to shift and redefine goals as the political situation dictates.
3. Keep undesirable alternatives off the agenda by not mentioning them.
4. Make your preferred alternative appear to be the only feasible one.
5. Focus on one part of the causal chain and ignore politically difficult ones.
6. Use rhetorical devices to blend alternatives to prevent strong opposition.
7. Selectively project consequences that make your decision look the best.
8. Choose the action that hurts powerful constituents the least, but portray your decision as creating the maximum social good.

The Polis Model can be applied to the decision making process of President Lyndon Johnson for the Vietnam War. As H.R. McMaster recounts in his book, *Dereliction of Duty*, Johnson's goals for the conflict were not clearly stated nor shared with the U.S. Congress.²² With support of Secretary of Defense McNamara, the president co-opted the Joints Chiefs of Staff to gain their silence as he pushed for his Great Society agenda at the expense of recommended force levels for operations in Vietnam.

Garbage Can Model: March, Cohen, and Olsen (1972)²³ developed the notion that decisions are made based on chance and unsystematic interactions of actors and opportunities, and the current availability of resources.²⁴ This model, based on the theory of organizational anarchy, posits the notion that organizations have inconsistent and ill-defined preferences, and operate on the basis of trial and error; that stakeholders only partially understand the processes; and that decision-makers often act whimsically and impulsively. Within this framework, March and his colleagues theorized that organizations produce many solutions for which there are no immediate problems, and are these dumped in a holding can—the garbage can. Problems needing solutions will arise in the future and a search through the garbage might yield a solution. In this sense, the garbage can is really an “opportunity” can. The mix of opportunities lying in waiting are based on the organization’s current and past environmental realities. The garbage can’s relevance depends on how quickly these cans get filled and also how quickly the garbage cans are discarded. While the garbage can presents opportunities for addressing the important problems, it has the threat of unsystematic rationality.

Vice Admiral Joseph Metcalf used the garbage can model to explain decision making of the 1983 Grenada Rescue Operation.²⁵ Adm Metcalf was the commander of the joint U.S. forces, CJTF 120, for Operation Urgent Fury, who in his reflections commented, “it is clear that many decisions just ‘happened’.”²⁶ While the goals of the invasion were clearly established and communicated, the command and staff structure was cobbled together with available forces from all services (an existing solution used to solve the emergent problem). The paper organization of CJTF 120 was fleshed out by re-directing personnel—a notable case was taking the Army liaison officer, Maj. Gen. Norm Schwarzkopf, and naming him the deputy commander. While the operation was a success, several problems with intelligence, communications, and coordination (resulting in fratricide) among the joint forces led to congressional investigations. The review of Operation Urgent Fury contributed to the enactment of the Goldwater-Nichols Department of Defense Reorganization Act of 1986 (GNA). GNA established authorities for the Chairman of the Joint Chiefs of Staff, revised military command structures, and instituted requirements for joint training. In sum, the non-rationality of the decision making process led to legislation to provide more structure and control.

Bargaining Model: Bargaining reflects a decision making process both between individuals within an organization and between organizations through their representatives. This perspective requires an understanding of the principles of negotiation. The essence of decision making of groups involves tradeoffs between constituents that may have competing interests and agendas. In seeking to identify common interests and mutual benefit for the involved parties, some concessions may be made, but the resulting decision should produce a condition that is acceptable to

either side. Here the anchoring and adjustment bias inhibits substantial movement from the status quo so it is unlikely to have drastic change in policy or strategy embraced by the group.

The bargaining approach is common in government, but does have a number of advantages and weaknesses.²⁷ It may be effective for addressing and presenting issues while serving as the catalyst for getting multiple perspectives before the decision making body. However, this approach may not result in the best alternative for a given situation since political consensus sometimes results in the lowest common denominator—achieving a decision that all will accept. Consequently, it may lead to an equitable distribution of power and benefit that may be inherently less effective than a contested decision.

Kettl and Fesler provide us with an example as they deconstruct the U.S. decisions during the Cuban Missile Crisis.²⁸ Based on Graham Allison's classic study, *The Essence of Decision*, that example demonstrates the bargaining among the key Kennedy Administration advisers ranging from the senior military officials, Secretary of Defense, Secretary of State, Director, Central Intelligence Agency and others under the leadership of the Attorney General, Robert Kennedy.²⁹ The Cuban Missile Crisis was a high-stakes and time-sensitive event with potentially catastrophic consequences for failure. The key players within the Kennedy administration had distinctly opposing views on the goals to be achieved and what should be done (e.g., General LeMay's insistence on confronting the Soviet Union with direct military strikes) in an environment of uncertainty, complexity, and ambiguity. The final U.S. actions were derived from reaching consensus through several iterations of discussions with the advisers.

Bargaining is a process that gives each participant a voice in the proceedings. While it may not be the case where a simple majority wins, it can be fraught with contention and can be time-consuming in the attempt to resolve points of disagreement. In this form of decision making, the needs of the most powerful parties are more likely to be met, but the larger interests of the aggregate may not be addressed. Limiting the number of people involved in making decisions presents its own paradoxes. Smaller numbers of participants may be able to reach decisions more quickly by excluding less powerful members, but may not have the requisite diversity of thought and experience to formulate better decisions. The potential for better decisions increases when the participant pool is larger even though achieving agreement may be more difficult.

Participative Decision Making Model: The participative decision making perspective is an expansion of the bargaining approach and attempts to include all those directly affected by the decision. It is the most democratic form of decision making where there is an opportunity to provide input and influence. However, there is an important distinction between “consultation” and “shared decision making power.”³⁰ Providing the opportunity to voice an opinion is not the same as giving power to make the decision. We commonly see this approach as one that calls for “consultation and stakeholder analysis” and that places emphasis on meeting with “constituents and clientele” to discern the key issues for consideration before decisions are reached. While these efforts may be largely symbolic, such stakeholder groups can wield significant power and present obstacles if not appropriately included in the decision process. These groups may have their own agenda and interests to protect, hence raising concerns about the degree to which they truly represent the goodwill of the

greater community. To address this concern, advisory groups are often sought to represent all views of the community in a grass roots fashion.³¹ Participative decision making takes place in the United Nations, NATO, and other world bodies.

The 2005 Base Realignment and Closure (BRAC) process had obvious implications for the members of the Joint Planning and Execution Community. Decisions made by the Services responsible to provide the Title 10 functions of training and sustaining fielded forces have a significant impact on the Combatant Commands (CoComs) that have the mission to execute the national military strategy, joint plans, and operations. The BRAC decisions recommended by the Army in such areas as realignment of operational forces of the Active Army at installations DOD-wide, return of overseas units back to the continental United States, and consolidation of headquarters and other activities in Joint or multifunctional installations have obvious implications for warfighting commands.³² To gain input from the military departments on areas of common interest, Joint Cross Service Groups were formed and provided input to the Army infrastructure analysis for the BRAC deliberations. Once the DOD BRAC report was submitted to the executive branch, members of the Presidential BRAC commission visited installations recommended for closure to hear from those impacted by such decisions.

Participative decision making is slow and expensive. While it is an effective means to collect information, the amount and unorganized nature of the information is a problem in its own right that has to be addressed. The quality of the decision in this approach often depends on the expertise, and commitment of the participants. There are a number of important factors that can influence the quality of participative decision making. The participants should strive to subordinate self-interest in pursuit of common

goals. There should be an appropriate level of representation from the stakeholders and those groups should have enough power to influence the outcome.³³

CONCLUSION

Each decision paradigm presented here provides a method to analyze problems that our USAWC graduates will face as they move into higher levels of command. It is evident that each paradigm has its opportunities and challenges. The advantages and disadvantages will manifest themselves in varying degrees in different context. As they sit at the decision making table, our graduates will be able to recognize and be able to analyze the paradigmatic limitations and strengths as they are being discussed in strategy planning. They will also know that while we aspire to be rational in our choices of action, we are limited in our cognitive ability to comprehensively develop and assess alternatives. Additionally, we have innate biases and use heuristics that effect how we process and use information. Since implementing decisions generally requires the involvement of others, it is necessary to include them in the process of identifying key issues and determining potential solutions. The environment and context of the problem should influence the extent of inclusion and collaboration. In such cases, either the bargaining or participative decision making approach may be more appropriate to establish common interests and produce agreement as to what should be done and how. The Kettl and Fesler conclusion that no single approach offers a best solution to all the problems of making decisions captures the central theme to the USAWC perspective on decision making.³⁴ Having a variety of decision tools in our kitbags helps us identify the appropriate approach to individual problem situations.

ENDNOTES:

¹ This quote from Elihu Root is the guiding principle that establishes the USAWC core curriculum and is cited in the USAWC command briefing.

² The discussion of jurisdictions for military profession is included in Don M. Snider, "The U.S. Army as Profession" in Don M. Snider (ed) *The Future of the Army Profession*, New York; McGraw-Hill, 2005, pp. 17-21.

³ A.J. Bacevich and Lawrence F. Kaplan, "Generals Versus The President: Eisenhower and the Army, 1953 – 1955, A Case in Civil Military Relations (CS 0697-02)," Syracuse, NY: Syracuse University: National Security Studies, 1997.

⁴ Ronald Heifetz, (1994), *Leadership without Easy Answers*. Cambridge, MA: Belknap Press, pp. 23-26.

⁵ Stephen Shambach (Ed.) (2004), Strategic Leadership Primer, Carlisle, PA: U.S. Army War College, p. 5.

⁶ Ian Mitroff and Francisco Sagasti (1973). "Epistemology as a General Systems Theory: An Approach to the Design of Complex Decision-Making Experiments," in *Philosophy of the Social Sciences*, 3 117-34.

⁷ The term is more commonplace and was introduced in H. Rittel and M. Webber (1973); "Dilemmas in a General Theory of Planning", *Policy Sciences*, Amsterdam: Elsevier Scientific Publishing Company, Inc., Vol. 4, pp 155-169.

⁸ Henry Louis Mencken *Prejudices: Second Series*, 1920. Internet. Accessed 12 November 2006

<http://www.phnet.fi/public/mamaa1/mencken.htm> and US editor (1880 - 1956)

<http://www.quotationspage.com/quote/282.html> Accessed 12 November 2006

⁹ Howard Raiffa (1968). *Decision Analysis*. New York; Addison-Wesley.

¹⁰ This figure in included in a slide presentation found at <http://www.dtic.mil/doctrine/jrm/plan4.ppt>. The concept of Joint Planning and Execution is detailed in "Chapter I Principles and Concepts" *Joint Publication 5-0 Joint Operation Planning*. Figure I-3 provides an illustration of the Joint Planning and Execution Community.

¹¹ Simon, Herbert A.(1957) *Models of Man*. New York: John Wiley and Sons.

¹² Charles Lindblom (1959), "The Science of Muddling Through" *Public Administration Review*, Spring, pp.79-88.

¹³ Heifetz.

¹⁴ For an amusing treatment of the evolution of the Bradley Fighting Vehicle from an infantry troop transport to an imposing combat system see the HBO film, "The Pentagon Wars" 1998 directed by Richard Benjamin.

¹⁵ Yehezkel Dror (1964). "Muddling Through –"Science' or Inertia?" *Public Administration Review*, 1964, pp. 153-177

¹⁶ Amatai Etzioni (1967). "A Third Approach of Decision-Making," *Public Administration Review*, 1967, pp. 385-392.

Amatai Etzioni (1986). "Mixed Scanning Revisited," *Public Administration Review*, 1986, pp. 8-14.

¹⁷ Etzioni (1967).

¹⁸ Irving Janis and Leon Mann (1977). *Decision-Making*, New York: The Free Press.

¹⁹ Paul A. Haynes (1974). "Towards a Concept of Monitoring," *Town Planning Review*, pp 8-14.

²⁰ Deborah Stone (2002), *Policy Paradox: The Art of Political Decisionmaking*, New York: W.W. Norton & Co, Inc.

²¹ Ibid.

²² H. R. McMaster (1998). *Dereliction of duty: Lyndon Johnson, Robert McNamara, the Joint Chiefs of Staff, and the lies that led to Vietnam*, New York: HarperCollins.

²³ March, James G. and Johan P. Olsen (1972). *Ambiguity and Choice in Organizations*, 2nd edition, Bergen

²⁴ Michael Cohen, James March and Johan Olsen (1972), "The Garbage Can Model of Organizational Choice" *Administrative Science Quarterly* 17(1), pp. 1-25.

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